

EXHIBIT 8

Dictionary of Computer and Internet Terms

Eighth Edition

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FIGURE 316. x-height

x-height the height of the *body* of the lowercase letterforms (such as the small x of a typeface). Some typefaces make x half as high as X; some make it 40% as high; and some make it 60% as high.

A typeface with a large x-height looks larger than a typeface of the same point size with a small x-height. *See also* FONT; TYPEFACE.

XHTML a newer formulation of HTML as an extension of XML. Documents written in XHTML can be processed as XML documents and can be viewed by XHTML-compliant browsers. *See* HTML; XML. *See also* www.w3.org/TR/xhtml1/.

XMCL (Extensible Media Commerce Language) an XML-based language designed to support the business of delivering digital content (music, etc.) over the Internet. Although much content on the Internet is free, other content will only be available if there is a mechanism allowing the content creators to receive reasonable payment for their work. XMCL provides a standard way to transmit data needed for this process. For more information, see www.xmcl.org.

XML (Extensible Markup Language) a language similar to HTML, but designed for transmitting complex data structures of any type, not just web pages. XML is a subset of SGML adopted as a standard by the W3C in 1998. XML is designed to be easier to use than SGML while providing richer features and better implementation of LOGICAL DESIGN than HTML.

In an XML document, the beginning and end of elements of the document are marked with tags, such as `<from>` and `</from>` to mark the beginning and end of the part of a memo that indicates who the memo is from. Note that the notation for tags follows the same format as HTML. However, XML does not define a set of tags as does HTML. Instead, it is extensible because different users can extend the language definition with their own set of tags.

When an XML document uses these tags, a document type definition (DTD) is needed to define the elements. The DTD may be included in the XML document itself, or it may be in a separate document that can be used by all documents in the same document class.

On the following page (page 559) is an example of an XML document that we could use to store data about people we might want to recruit for computer jobs in our company. In this example, the document type definition (DTD) is included at the front of the document.

This example creates a document type called RECRUITLIST, which

consists of elements called RECRUITS. Because the DTD contains a plus sign after the declaration of RECRUIT, a document can have one or more recruits. Each RECRUIT can consist of four elements: NAME, ADDRESS, DEGREE, and ACCOMPLISHMENT. Each recruit must have exactly one NAME and one ADDRESS. The asterisk after DEGREE means that a recruit can have zero, one, or more degrees. The element NAME consists of three elements: FIRSTNAME, LASTNAME, and NICKNAME. The question mark after the definition of NICKNAME means that a name may contain zero or one nickname. Following the document type definition, this sample shows two particular recruits.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE RECRUITLIST [
<!ELEMENT RECRUITLIST (RECRUIT+)>
<!ELEMENT RECRUIT (NAME,ADDRESS,DEGREE*,ACCOMPLISHMENT+)>
<!ELEMENT NAME (FIRSTNAME,LASTNAME,NICKNAME?)>
<!ELEMENT FIRSTNAME (#PCDATA)>
<!ELEMENT LASTNAME (#PCDATA)>
<!ELEMENT NICKNAME (#PCDATA)>
<!ELEMENT ADDRESS (STREET+,CITY,STATE,ZIP)>
  <!ELEMENT STREET (#PCDATA)>
  <!ELEMENT CITY (#PCDATA)>
  <!ELEMENT STATE (#PCDATA)>
  <!ELEMENT ZIP (#PCDATA)>
  <!ELEMENT DEGREE (SCHOOL, YEAR, TYPE)>
  <!ELEMENT SCHOOL (#PCDATA)>
  <!ELEMENT YEAR (#PCDATA)>
  <!ELEMENT TYPE (#PCDATA)>
  <!ELEMENT ACCOMPLISHMENT (#PCDATA)>
]>
```

```
<RECRUITLIST>
<RECRUIT>
  <NAME>
    <FIRSTNAME>Bill</FIRSTNAME>
    <LASTNAME> Gates</LASTNAME>
    <NICKNAME> Trey </NICKNAME>
  </NAME>
  <ADDRESS>
    <STREET>One Microsoft Way</STREET>
    <CITY>Redmond</CITY>
    <STATE>Washington</STATE>
    <ZIP>98052</ZIP>
  </ADDRESS>
  <ACCOMPLISHMENT>Founded Microsoft</ACCOMPLISHMENT>
  <ACCOMPLISHMENT>Completed two years of Harvard
    </ACCOMPLISHMENT>
</RECRUIT>
<RECRUIT>
  <NAME>
    <FIRSTNAME>Donald</FIRSTNAME>
    <LASTNAME>Knuth</LASTNAME>
  </NAME>
  <ADDRESS>
    <STREET>353 Serra Mall</STREET>
    <CITY>Stanford</CITY>
    <STATE>California</STATE>
    <ZIP>94305</ZIP>
```

```
</ADDRESS>
<DEGREE>
  <SCHOOL>Case Institute of Technology</SCHOOL>
  <YEAR>1960</YEAR>
  <TYPE>B.S.</TYPE>
</DEGREE>
<DEGREE>
  <SCHOOL>California Institute of Technology</SCHOOL>
  <YEAR>1963</YEAR>
  <TYPE>Ph.D.</TYPE>
</DEGREE>
<ACCOMPLISHMENT>Created TeX</ACCOMPLISHMENT>
</RECRUIT>
</RECRUITLIST>
```

If we run this document through an XML-validating parser, we can verify that it is a valid XML document. A valid XML document must contain a closing tag for each opening tag, the elements must be correctly nested inside each other, and all of the elements specified in the DTD must be present in the specified sequence. However, the XML parser will not process the data; that must be done with an application designed to work with this type of document. XML is intended for a broad array of applications, including presentation of web documents and storage and transfer of database information. For more information, see www.w3.org/XML.

XMODEM a protocol for transmitting files from one microcomputer to another and detecting transmission errors if they occur. XMODEM was developed by Ward Christensen and was used extensively by microcomputer hobbyists until more powerful protocols such as KERMIT were developed. See **PROTOCOL**.

X-OFF, X-ON codes that, respectively, turn off and on the transmission of data from a computer to a terminal. Many computers accessible by Telnet are programmed so that if the person at the terminal presses Ctrl-S (X-OFF), the computer will stop transmitting until the person presses Ctrl-Q (X-ON).



FIGURE 317. XOR gate (logic symbol)

XOR gate (exclusive-OR gate) a logic gate whose output is 1 when one but not both of its inputs is 1, as shown in the table on the following page: